OPERATING INSTRUCTIONS

for

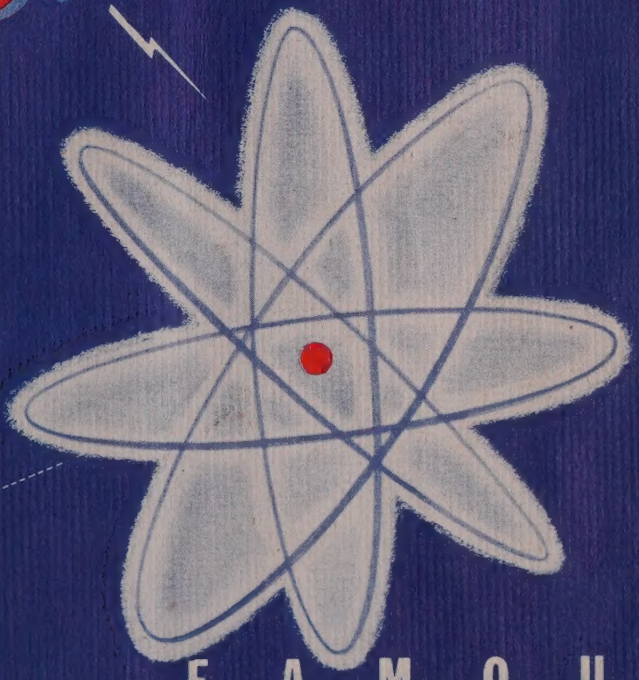
Dynamic Mutual Conductance Tube Tester

MODEL 600

Reads Directly in MICROMHOS

John Bridges

HICKOK



WORLD FAMOUS

OPERATING INSTRUCTIONS

FOR

DYNAMIC MUTUAL CONDUCTANCE TUBE TESTER

MODEL 600

THE HICKOK ELECTRICAL INSTRUMENT COMPANY

10514 Dupont Avenue
Cleveland 8, Ohio

NOTE

See Instructions for Filament Continuity on Page 5, Paragraph 15.

To test ACORN TUBES Types Numbers 6F4, 954, 955, 956, 957, 958, and 959 9005 on the Model 600 Tube Tester requires the use of Adapter Code Number 1050-9.

This adapter will be supplied on special order.

OPERATING INSTRUCTIONS
for
DYNAMIC MUTUAL CONDUCTANCE TUBE TESTER
MODEL 600

The Instrument Packed Herewith is:_____

1. Model 600 Vacuum Tube Tester_____

Accessories included with the Model 600 tester are:

1 -- Booklet Instructions for Model 600_____

1 -- Grid Lead with Clip_____

Serial Number_____

Signed:_____

Instruction for operation of Model 600.

Read These Instructions Through Before Attempting to operate the Tester.

1. This instrument is designed to operate on 60 cycles 110-125 volt power source. It can be used on frequencies from 50 to 400 cycles, 110-120 volts.

2. There are two rectifier tubes, an 83 and a 5Y3GT, necessary to operate this tester. They are included. The fuse lamp is a standard #81 auto lamp. The neon lamp is a General Electric, 1/4 watt, 110 volt, candelabra base signal lamp.

3. LINE VOLTAGE ADJUSTMENT. - After the power is turned ON, press the push switch P7 which will cause the pointer of the meter to move up the scale. The button P7 is held down and the knob, LINE ADJUST, is turned until the meter pointer rests exactly over the mark, LINE TEST, at the center of the meter scale. This establishes standard voltages on the tube. Make final line adjustment after the tube being tested is placed in its socket.

4. SELECTORS. - The row of selector knobs across the center of the control panel is for the purpose of conducting proper voltages to the tube's base pins. The operation of setting these selector knobs is similar to dialing a telephone number. On the roll chart, below the word SELECTORS appear the dialing numbers. These dialing numbers consist of two letters and five figures. Example: JR-6237-5. Starting at the left, the first knob (FIL) is turned until it points at the letter J, the second knob (FIL) is turned to R, the third knob (GRID) to 6, the fourth (PLATE) to 2, the fifth (SCREEN) to 3, the sixth (CATHODE) to 7, and the seventh (SUPPRESSOR) to 5. These selector switches are electrically interlocked so that it is impossible to connect two different voltages to the same tube pin. Thus accidental shorts are avoided.

The selector system is designed to minimize selector settings. For example the filament setting is nearly always JR. These two knobs seldom need resetting. Also in testing duo-diode-triode tubes the amount of selector setting has been reduced to a minimum.

5. SHORT TEST. - The SHORTS switch has six positions. The first five are used in testing the tube for shorts. The sixth position TUBE TEST is used when indicating mutual conductance. Use the TUBE TEST Position only if the tube has no shorts.

Turning the SHORTS switch successively through the positions 1-2-3-4-5 connects the various elements in turn across the test voltage. Tubes having shorted elements will complete the circuit and cause the neon lamp to glow. Tubes may be tested for shorts either hot or cold. A short is indicated by a steady glow on both plates of the neon lamp. A momentary flash of the neon lamp as the shorts switch is turned from one position to another should be disregarded. This flashing is caused by the charging of a condenser in the short test circuit. A shorted tube should be

discarded without further test. With tubes having more than one section such as the 6J6, make short test for each section.

Locating Shorted Elements. In the following table(X) under any SHORT switch position indicates that the neon lamp glows in that position.

KIND OF SHORT	1	2	3	4	5
FIL -- CATHODE			X		
FIL -- GRID	X	X			X
FIL -- PLATE	X	X		X	X
FIL -- SCREEN	X		X	X	X
FIL -- SUP		X			
GRID -- CATHODE	X	X	X		X
GRID -- PLATE				X	
GRID -- SCREEN		X	X	X	
GRID -- SUP	X				X
PLATE -- SCREEN		X	X		
PLATE -- SUP	X			X	X
SCREEN -- SUP	X	X	X	X	X

6. MUTUAL CONDUCTANCE. - Tubes having SHORTS should be discarded without further tests.

If the tube passes the preliminary short test it is then tested for MUTUAL CONDUCTANCE which is the best test for amplifier tubes. Turn the SHORTS switch to TUBE TEST position. On the roller chart, reading from left to right, opposite the tube type appear: FIL. VOLTAGE; SELECTORS, which were explained in paragraph (4) above; BIAS, which gives the setting for the BIAS dial; ENG, which gives the setting for the ENGLISH dial; PRESS, which indicates the push button to be pressed for meter reading; MUT-COND. which gives the AVERAGE MUTUAL CONDUCTANCE in MICROMHOS of the tube being tested. Under the heading NOTATIONS appear special notes pertaining to the testing of the tube.

The ENGLISH setting is used when it is desired to read the value of the tube on the RED-GREEN (ENGLISH) sector of the meter scale. When using the ENGLISH scale the MICROMHO readings are disregarded.

NOTE

Tubes having less than 500 Micromhos cannot be made to read in the GREEN sector of the meter scale. Such tubes list micromho reading only and are good if the reading is above a specified minimum.

Micromhos are indicated in three ranges 0-3000, 0-6000, 0-15,000.

a. On the English dial are three dots stamped into the metal and filled with red lacquer. These dots are the points used in setting the micromho ranges.

b. The dot near 73 on the dial is the setting point for the 3000 micromho scale.

c. The dot near 86 is the point for the 6000 micromho scale.

d. The dot near 92 is the point for the 15,000 micromho scale.

e. When reading micromhos the RED and GREEN sectors of the meter scale are disregarded.

f. When testing for mutual conductance the push switch P4--Gm is pressed. Gm is the symbol for mutual conductance.

CAUTION: Do not press P4 when testing rectifier tubes.

g. Tubes having more than one section, such as the 6J6, require different dial settings for each section.

7. RECTIFIER TUBE TEST. - Rectifier tubes, including diode tubes and diode sections of multiple element tubes, having no mutual conductance are tested for emission only.

a. The push switch P1 is used when testing detector diodes. It applies a low voltage which will not injure the delicate cathode. Good diodes will cause the pointer of the meter to move above the pointer marked DIODES O.K.

b. The push switch P2 is used when testing cold cathode rectifiers such as the 0Z4. This applies a voltage sufficiently high to ionize the tube and start conduction. Good tubes will read in the green (GOOD) sector of the meter scale.

c. The push switch P3 is used when testing ordinary rectifier tubes, such as the 5Y3. This applies a medium voltage which is best adapted to reveal defects in this type of tube. Good tubes will read in the green (GOOD) sector of the meter scale.

NOTE

On the data chart a star (★) following P1, P2 and P3 indicates that the ENGLISH setting only is used.

8. GAS TEST. - The push switches P5 and P6 are used to test an amplifier tube for gas content.

a. Set the English dial at 73.

b. The push switch P5 is pressed and held down, while the BIAS dial is turned to cause the pointer of the meter to indicate 100 micromhos on the 0-3000. scale.

c. Hold down P5 and press P6.

d. If the tube contains gas the pointer of the meter will move UP the scale. If the pointer movement is not more than one division of the scale the gas content is satisfactory.

NOTE

With some tubes, such as the type 45, the micromho reading cannot be brought down to 100 by turning the BIAS dial. In such case turn the BIAS dial to 100 and test for gas.

e. Some tubes develop gas after being heated for a period of time. If a tube is suspected, allow it to heat for a few minutes.

9. METER REVERSE. - Directly below the indicating meter is a switch marked REVERSE-NORMAL. With certain tubes, such as the 117N7, the meter when this switch is set on NORMAL will deflect backwards (to the left) when push switch P3 is pressed for rectifier test. In such case turn the meter switch to REVERSE which will cause the pointer of the meter to move up the scale. After the test has been made return the switch to NORMAL.

10. TOP CAPS. - There are two jacks in the upper center of the control panel marked GRID and PLATE. These are used when making connection to the top cap of the tube being tested. On the data chart in the NOTATIONS column opposite tube types having top caps is the notation CAP=G or CAP=P. G means that the top cap is connected to GRID jack and P that it is connected to the PLATE jack.

11. SOCKET NUMBERING. - In order to reduce selector set-up to a minimum, the socket contacts are numbered as shown on Plate 1 which shows the bottom views. The numerical values of the lettered dials as follows:

0 ---- A ---- P

1 ---- B ---- R

2 ---- C ---- S

3 ---- D ---- T

4 ---- E ---- U

5 ---- F ---- V

6 ---- G ---- W

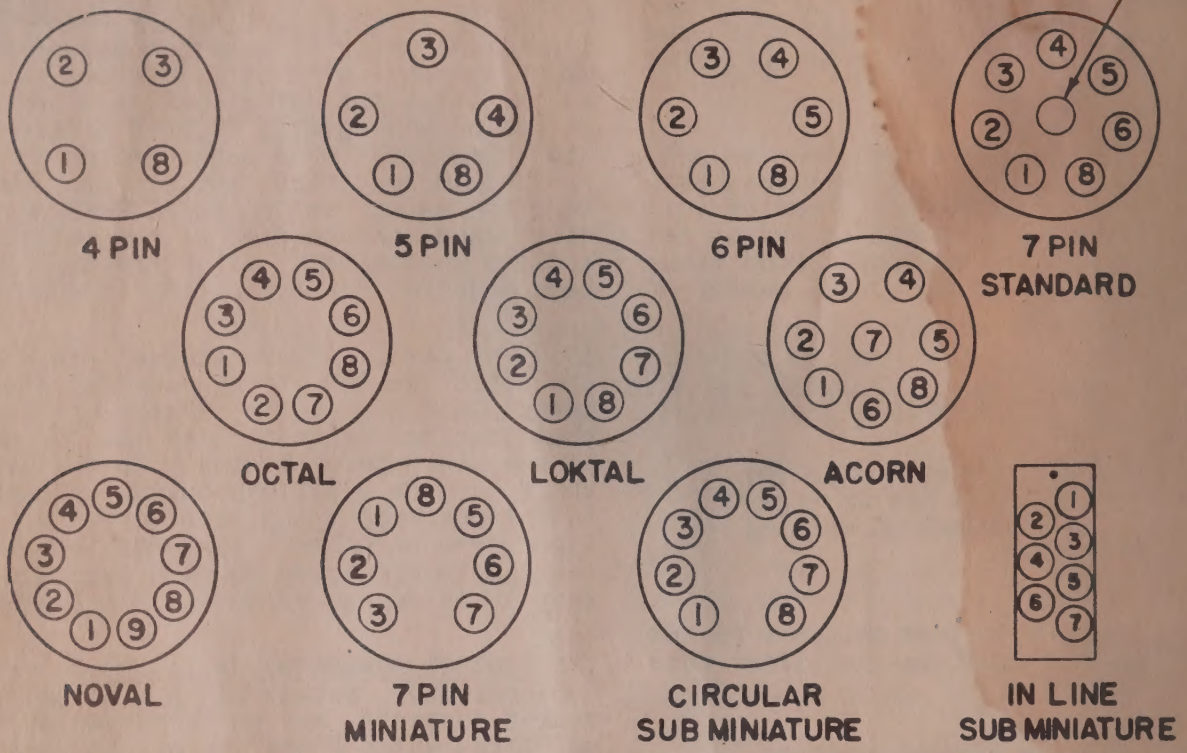
7 ---- H ---- X

8 ---- J ---- Y

9 ---- K ---- Z

The letter I was omitted because of its resemblance to the figure 1. The letter Q was omitted because of its resemblance to the figure 0.

SOCKET NUMBERING
BOTTOM VIEWS



NOTE

The center of the large 7-pin socket is used to check pilot lamps. Set the filament selector switches on JR. Set the filament voltage switch to the proper voltage for the lamp being tested.

12. SPECIAL NOTES.- Power line voltage varies with different localities. It may also vary with different hours of the day.

While a national survey indicates that the average voltage for the USA is about 117 volts, it does not mean that every locality maintains a constant voltage at that level.

Occasionally we have had the complaint that a used tube will test GOOD, but will not work in the radio receiver; but when a NEW tube is substituted, the receiver will operate correctly. The answer is this: Tubes are built to specifications. Our tube testers are designed to test tubes in conformity with these specifications.

The used tube that would not perform in a certain receiver was not receiving its specified filament voltage. The new tube performed because of its initial reserve capacity. The used tube would have performed if it had received its specified filament voltage.

Tube failure frequently occurs in A.C.--D.C. sets where several tubes are connected with their heaters or filaments in series. Sometimes, even though the power line voltage is normal, a series tube with abnormally high filament resistance will rob its companion tube of its normal filament voltage. The robbed tube apparently fails; but when tested under specified conditions, the tube will test GOOD.

13. The versatility of the Hickok Dynamic Mutual Conductance Tube Tester makes possible a special test that will reveal a tube's ability to perform under adverse conditions as mentioned above. This is possible because the tester measures mutual conductance instead of emission.

THE TEST

a. Measure the mutual conductance in the ordinary way.

b. Press P4 and adjust the ENGLISH dial until the tube reads in the GREEN (GOOD) sector at 2000 on the 0-3000 scale.

c. While holding everything else constant, reduce the FILAMENT voltage and note new reading.

d. If the meter still reads in the GREEN (GOOD) sector, the tube has a large life reserve and will perform satisfactorily.

e. The filament voltage reductions to be made are shown in the following table:

NORMAL FIL. VOLTS	REDUCE TO
1.5	1.1
2.0	1.5
2.5	2.0
3.0	2.5
5.0	4.3
6.3	5.0
7.5	6.3
10.0	7.5
12.6	10.0
35.0	25.0
50.0	35.0

14. CONTINUITY TEST. - The Model 600 Tube Tester can be used to test for continuity through resistances up to 200,000 ohms.

a. Set SHORTS switch on position 4.

b. Connect two leads having prods and pin tips to the jacks marked PLATE and GRID.

c. Touch the prods to the terminals through which continuity is to be determined.

d. The neon lamp will glow if circuit is continuous.

15. FILAMENT AND HEATER CONTINUITY.

1. Turn tester on.
2. Set selectors as per chart for tube to be tested.
3. Set FILAMENT switch on BLST instead of voltage indicated on chart.
4. Set SHORT TEST switch on position 1.
5. Place tube in proper socket.

If the neon lamp glows, the filament is good and a complete test should then be made on the tube, by setting FILAMENT switch on the proper tap, and while the tube heats, rotate the SHORT TEST switch several times thru all positions. If no shorts are indicated, set the switch in TUBE TEST position and proceed to test the tube as per chart.

If the neon lamp does not glow, filament is open and further test is unnecessary. Certain tubes such as the 35Z5-50Z7, etc. with tapped filaments have special continuity test settings, see roll chart.

TO TEST BALLAST TUBES

1. Turn Tester on.
2. Set filament switch to BLST.
3. Set SHORT TEST switch on 1.
4. Set first selector switch (lettered A to K) to letter shown in column marked (first selector) -- Set all numbered selectors on zero --
5. ROTATE second selector switch (lettered P to Z) from P to Z. NEON LAMP SHOULD LIGHT IN POSITIONS NOTED.

TUBE TYPE	First Selector	Neon lamp should light in these positions.						
1A1-1B1-1C1-1E1-1F1-1G1-1J1-1K1-1L1-1N1-1P1-1Q1-1R1G-1S1G-1T1G-1U1G-1V1-1Y1-1Z1-2	J	R						
2UR224	J			T				X
2LR212	H	R	S		U			

TUBE TYPE	First Selector	Neon lamp should light in these positions.						
3	J	R						
03G	J			T				
4-5	J	R						
6-133	J			T				
6-6AA	J	R						
7-8-9	J	R						
10A-10AG	J			T				
10AB	J			T				X
K17B-M17C-BM17C	J			T				X
M17HG-M17H	J		S					X
	D	R						
K23B-K23C-KX23B-KX30C	J			T				X
M30H	J		S					X
	D	R						
30A-K30A	J			T				
K30Q	J	R		T				X
33A-33AG	J			T				
K34B	J			T				X
36A	J			T				
K36B-BK36B-L36B-BM-L36C-KX36C	J			T				X
KX36A	J	R						
36D-L36D	J	R		T				X
L36DJ	J	R	T	T	U			X
K36H-M36H-M36HG	J		S					X
	D	R						
L40S1-L40S2	J	R		T		V		
42A	J			T				
42A1	H				U			
42A2-42B2	H		S		U			
K42B-L42B-M42B-KX42B-LX42B-L42BX-K42C-L42C-M42C	J			T				X
KB42D-K42D-L42D	J	R		T				X
LX42D-L42DX	J	R	S	T				
K42E-L42E	J			T				X
L42F	J							X
	D	R						
42HA-K42HJ-M42H-M42HG	J		S					X
	E	R		T				
KX42C	J			T				X
L42S1	J	R		T		V		
49A-49AJ-K49AJ	J			T				
KX49A	J			T				X
49A1	H				U			

TUBE TYPE	First Selector	Neon lamp should light in these positions.						
49A2-49B2	H		S		U			
K49B-L49B-M49B-BM49B-K49C-M49C-BM49C-BK49C-K49E-L49E	J			T				X
K49D-BK49D-L49D	J			T				X
L49F	J							X
	D	R						
M49H-M49HG	J		S					X
	D	R						
KZ49B-KZ49C	J	R				V		
K49BJ-L49BJ	J			T	U			X
L49S2	J	R		T		V		
49AJ-K49AJ	J			T				
KX49B-LX49B-LX49C	J			T				X
L49DJ	J	R		T	U			X
L49S3	J	R		T		V		
50A2	J	R		T				
50A2MG-50B2	J	R				V		
50X3	J	R						
K52H-M52H	J		S					X
	D	R						
K54B	J			T				X
55A-K55A	J			T				
55A1	H				U			
KX55A	J	R						
55B-K55B-M55B-BM55B-L55BG-LX55B	J			T				X
55A2-55B2	H		S		U			
K55C-L55C-KX55C	J			T				X
K55CP	J			T		V		X
K55D-L55D	J	R		T				X
L55E-M55E	J			T				X
L55F-M55F-BL55F	J							X
	D	R						
K55H-M55H-M55HG	J		S					X
	D	R						
L55S1-L55S2	J	R		T		V		X
60R30G	J	R		T				
64.23	J			T				
67A	J			T				
K67B-L67B	J			T				X
L73B-K74B-L74B-CX74C	J			T				X
80A	J			T				
K79B-K80B-M80B-K80C-KX80B-L80B	J			T				X

TUBE TYPE	First Selector	Neon lamp should light in these positions.						
K80F	J							X
	D	R						
KX87B-LX87B-L90B	J			T				X
K90F-M90F-K92F-M92F	J							X
	D	R						
92A	J			T				
L92B-95K2	J			T				X
L99D	J	R		T				X
100R8	J			T				X
120R	J	R						
120RS-135K1	J			T				X
135K1A	J			T	U			X
140L4-140L8-140R4-140R8	J	R		T				
140R	J	R						
140L44-140R44	J	R	S	T				
165L4-165R4-165R8	J	R		T				
165R	J	R						
165L44-165R44	J	R	S	T				
185L4-185L8-185R4-185R8	J	R		T				
185R	J	R						
185L44-185R44	J	R	S	T				
200R-250R	J	R						
250R8-290L4	J			T				X
300R4-320R4	J			T				X
340	J	R						
808-1	J			T	U			X
E14980-W43357-W4588-3613	J			T				X
3334-3334A	J	R		T				X
8593-8598-8601-8664	J			T				X
3ER248	J	R		T	U			X
3CR241	J	R		T				X

NOTE: There is a minimum charge of $1.50 for any parts order.

HICKOK CODE NO.	NAME AND DESCRIPTION	REF. SYMBOL OR FUNCTION
2490-156	BOOKLET, Instruction	
2920-7	BUTTON, Push: black	
2920-8	BUTTON, Push: red	
3095-41	CAPACITOR: 2700 mmf, 500 V, 10%, mica	C2
3105-24	CAPACITOR: .1 mfd, 400 V, paper	C1
3200-44	CHART, Roll: tube data	
4160-67	DIAL Ass'y: Bias	
4160-73	DIAL Ass'y: English	
10300-1	JACK, Pin: red, Eby #52	
10300-2	JACK, Pin: black, Eby #52	
11500-11	KNOB, Ass'y: Hickok bar knob with pointer	
12270-1	LAMP: neon glow, 1/4 W, 115 V.	
12270-2	LAMP: auto, Tung-Sol #81, bayonet type	
12270-12	LAMP: #47 G.E., 6-8 V, .15 amp, miniature bayonet base	PILOT
12270-17	LAMP: #49 pilot, .06 mils, 2V, bayonet	
12450-145	LEAD, Ass'y:	
12450-180	LEAD, Ass'y: Grid cap, Amphenol #63-1W	
12450-207	LEAD, Ass'y:	
480-781	METER: DC milliammeter, S48 black, flush square	
16925-90	POTENTIOMETER: dual, 150-150 ohms, linear, wire wound, Mallory #MM150P	R4, R5
18410-472	RESISTOR: 47 ohms, 1/2 W, 10%, fixed, comp.	R20, R21, R22
18414-182	RESISTOR: 180,000 ohms, 1/2 W, 10%, fixed, comp.	R8
18414-332	RESISTOR: 330,000 ohms, 1/2 W, 10%, fixed, comp.	R10
18422-122	RESISTOR: 1200 ohms, 1W, 10%, fixed, composition	R2
18423-151	RESISTOR: 15,000 ohms, 1W, 5%, fixed, comp.	R3, R23
18550-89	RESISTOR: 215,000 ohms, 1W, 1%, Wilkor CP1	R24
18575-12	RESISTOR: 1800 ohms, 10 W, 10%, fixed, vitreous enamel	R1
18575-19	RESISTOR: 100 ohms, 10%, vitreous enamel, center-tapped	R12, R13
18575-89	RESISTOR: 8500 ohms, 10W, 10%, wire wound	R6
18670-406	RESISTOR, Spool: medium, 15 ohms	R9
18670-418	RESISTOR, Spool: medium, 150 ohms	R14
18750-2	RHEOSTAT: 200 ohms, 25 W, Mod. D, Ohmite #2878-3SC	R16
19350-1	SOCKET: small bayonet, Drake #614L-CH-LT	
19350-2	SOCKET: candelabra, Drake #414-14L-LT	
19350-62	SOCKET: 9-pin, black, Cinch Mfg.	
19350-76	SOCKET: 7-pin miniature, Amphenol #147-170-24	
19350-77	SOCKET: 8-pin octal, black, Amphenol #77-MIP-8	
19350-78	SOCKET: 4-pin, black, Amphenol #77-MIP-4	
19350-93	SOCKET: 4-pin, black, Amphenol #78S-4	
19350-94	SOCKET: 5-pin, Amphenol #78S-5	
19350-95	SOCKET: 6-pin, Amphenol #78S-6	
19350-96	SOCKET: 7-pin, Amphenol #78-7CD	
19350-97	SOCKET: 8-pin loctal, Amphenol #78-8I	
19350-99	SOCKET: 8-pin octal, Amphenol #78S-8	

15C5-5K knob less Pointer
with Pointer

Prices will be furnished upon request.

PARTS LIST FOR MODEL 600 TUBE TESTER

NOTE: There is a minimum charge of $1.50 for any parts order.

HICKOK CODE NO.	NAME AND DESCRIPTION	REF. SYMBOL OR FUNCTION
19350-101	SOCKET: sub-miniature, Cinch #EXP-8694	
19350-112	SOCKET, Ass'y: Drake #40	PILOT
19350-119	SOCKET: sub-miniature, 7-contact, Cinch #EXP-8736-B1	IN-LINE
19910-54	SWITCH: Push button, 7-gang, Oak #43927-130	P1-P7
19911-7	SWITCH: Snap DPDT, Oak #16743-78	METER REVERSING
19911-9	SWITCH: Toggle, SPST, A.H. & H. #20994-DA, with bat handle	OFF-ON
19912-202	SWITCH: Rotary, 1 section, 2 pole, 20 position	FILAMENT
19912-203	SWITCH: Rotary, 5 section, 6 position, Oak Type F	SHORT TEST
19912-204	SWITCH: Rotary, 5 section, 10 position, Oak Type F	SELECTORS
19912-205	SWITCH: Rotary, 1 section, 10 position, Oak Type F	CATHODE-SUPPRESSOR
20800-101	TRANSFORMER: Power	
20875-6	TUBE: 5Y3GT/G	RECTIFIER
20875-28	TUBE: 83	RECTIFIER

NOTE

In ordering parts or materials for this instrument, the serial number must be given in order to identify properly the material required.

Prices will be furnished upon request.

BULLETIN T-101
SEPT. 11, 1950

TEST DATA FOR SUB-MINIATURE TUBES, USING TESTERS HAVING ONLY ONE SIGNAL

ROUND TUBES, USE THE CIRCULAR 8-pin SOCKET. The round sub-miniature tubes with less than 8-leads, have several different basings; but they all follow a similar pattern. Viewing the tubes from the bottom, the leads are numbered in a clockwise fashion, beginning with lead No. 1 which is identified by an arrow mark on the side of the tube. The leads are inserted one at a time into its proper socket contact (long nose pliers make this easier). The socket contacts (top view) start with the bottom right contact and are numbered in a counter clockwise fashion.

FLAT TUBES USE THE LINEAR 7-pin SOCKET. The flat sub-miniature tubes have the No. 1 lead identified by a red dot, adjacent to the lead. The No. 1 contact of the linear socket is identified by a small dot molded into the socket adjacent to the contact.

TEST DATA IS AS FOLLOWS:

Tube Type	Fil Volts	Selectors	Bias	Eng.	Press	Mut Cond	Notations
1AC5	1.1	EV-2780-0	47	0	P4	500	
1AD5	1.1	EV-2780-0	28	16	P4	600	
1Q6	1.1	EV-2780-0	30	0	P4	500	
1Q6	1.1	EV-0600-0	0	0	P1*	---	OK over 350
1S6	1.1	EV-3180-0	35	Gm only	P4	OK over 275	
1S6	1.1	EV-0600-0	0	0	P1*	OK over 350	
1T6	1.1	EV-3186-0	23	Gm only	P4	OK over 250	
1T6	1.1	EV-0600-0	0	0	P1*	OK over 350	
1W5	1.1	EV-2780-0	33	Gm only	P4	OK over 300	
2E31/2E32	1.1	DV-4120-0	41	Gm only	P4	OK over 200	
2E35/2E36	1.1	DV-4120-0	40	Gm only	P4	OK over 200	
6K4	6.3	DU-2105-0	39	74	P4	1900	
SN-954	6.3	ES-0103-0	0	50	P3*	----	
SN-955B	6.3	DW-1708-4	29	60	P4	1200	
SN-955B	6.3	DW-2508-4	29	60	P4	1200	
SN-973B	6.3	GT-1574-0	30	65	P4	1400	
5633	6.3	EW-3051-2	26	64	P4	1325	
5634	6.3	EW-3051-2	27	60	P4	1350	
5637	6.3	DU-2105-0	31	Gm only	P4	OK over 300	
5639/SN953	6.3	DW-1572-0	31	79	P4	2500	
5646/SN1006	6.3	FT-4102-0	30	Gm only	P4	OK over 300	
CK-5672	1.1	DV-4120-0	55	6	P4	550	
CK-5676	1.1	ES-3100-0	37	51	P4	1000	
CK-5678	1.1	DV-4120-0	22	29	P4	700	
CK-5829	6.3	DV-0607-0	0	0	P1	0	Diode #1
CK-5829	6.3	DV-0102-0	0	0	P1	0	Diode #2
CK-573AX	1.1	CU-3100-0	34	73	P4	2000	

THE HICKOK ELECTRICAL INSTRUMENT COMPANY
10514 DUPONT AVENUE
CLEVELAND, 8, OHIO

BULLETIN T-103
November 15, 1950

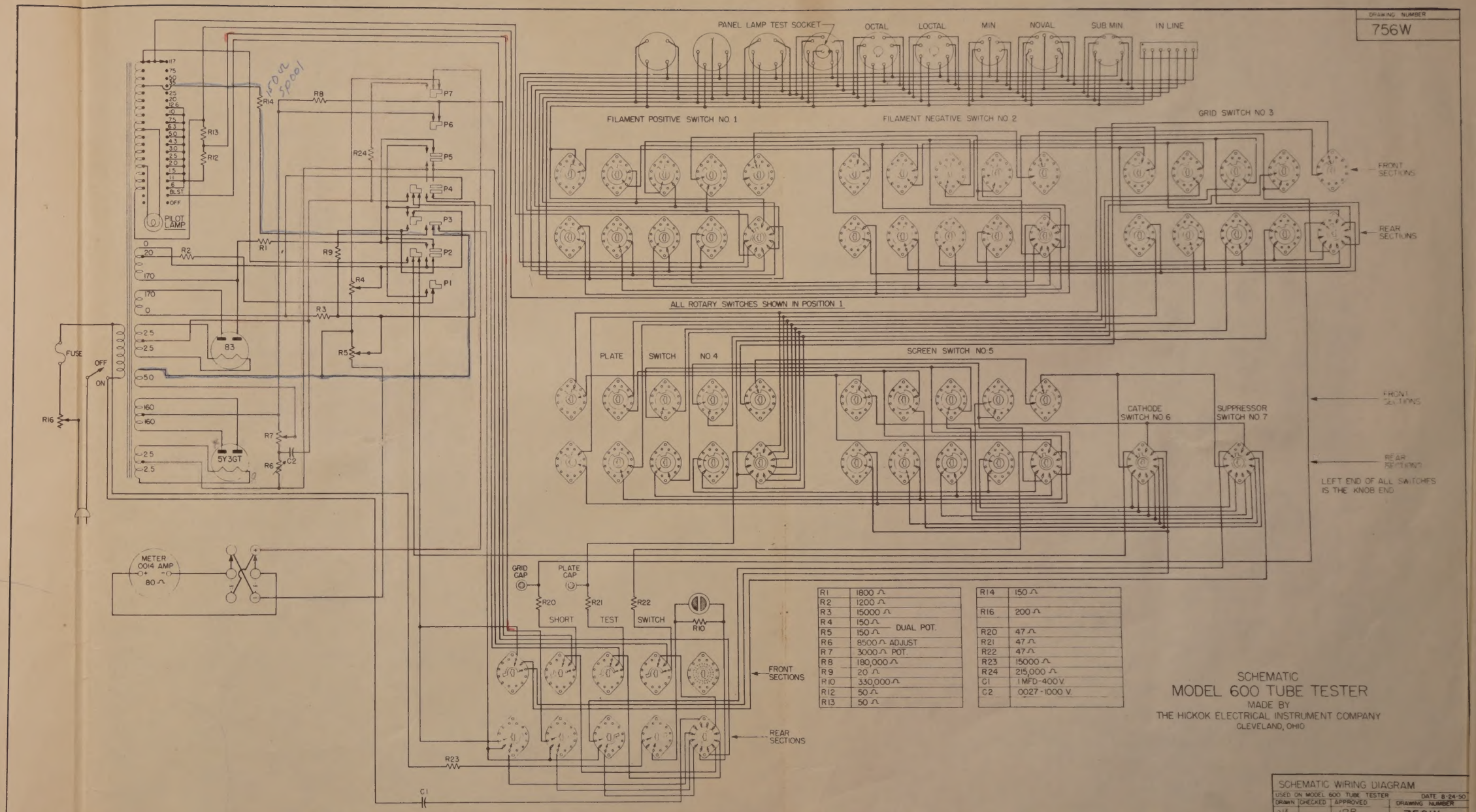
The following tube types have been deleted from the Data Roll Chart 3200-44 at the recommendation of the tube manufacturers due to their obsolescence or limited demand.

Tube Type	Fil. Volts	Selectors	Bias	Eng.	Press	Mut. Cond.	Notations
1B5	2.0	JR-5200-0	28	73	P4	475	Triode Sect. Micromhos only. OK over 380 on 3000 scale.
1B5	2.0	JR-5400-0	28	0	P1*	---	Diode No. 1
1B5	2.0	JR-5300-0	28	0	P1*	---	Diode No. 2
6C6	6.3	JR-0235-4	21	60	P4	1225	Cap = G
6D6	6.3	JR-0235-4	21	68	P4	1600	Cap = G
6P5	6.3	JR-5307-0	29	65	P4	1450	
6Z7	6.3	JR-5607-0	0	55	P4	1200	Triode No. 1
6Z7	6.3	JR-4307-0	0	55	P4	1200	Triode No. 2
10	7.5	JR-3200-0	39	61	P4	1250	
12A7	12.6	JR-0236-5	48	48	P4	975	Pent. Sect. Cap = G
12A7	12.6	JR-0504-2	0	40	P3*	---	Rect. Sect.
15	2.0	JR-0234-0	22	19	P4	625	Cap = G
19	2.0	JR-4500-0	15	51	P4	1000	Triode No. 1
19	2.0	JR-3200-0	15	51	P4	1000	Triode No. 2
25A6	25.0	JR-5347-0	43	76	P4	2300	
25Z6	25.0	JR-0507-2	0	40	P3*	----	Plate No. 1
25Z6	25.0	JR-0304-2	0	40	P3*	----	Plate No. 2
26	1.5	JR-3200-0	43	56	P4	1150	
27	2.5	JR-3204-0	41	49	P4	1000	
30	2.0	JR-3200-0	40	44	P4	900	
31	2.0	JR-3200-0	65	43	P4	925	
32	2.0	JR-0230-0	37	23	P4	640	Cap = G
32L7	35.0	JR-5347-0	22	87	P4	4800	Ampl. Sect.
32L7	35.0	JR-0602-3	0	50	P3*	----	Rect. Sect.
33	2.0	JR-3240-0	35	61	P4	1450	
34	2.0	JR-0230-0	33	17	P4	600	Cap = G
35	2.5	JR-0234-0	24	51	P4	1020	Cap = G
36	6.3	JR-0234-0	24	52	P4	1050	Cap = G
37	6.3	JR-3204-0	41	44	P4	900	
38	6.3	JR-0234-0	39	50	P4	1050	Cap = G
39/44	6.3	JR-0234-0	28	50	P4	1000	Cap = G
41	6.3	JR-4235-0	34	67	P4	1600	
42	6.3	JR-4235-0	29	73	P4	2000	
43	25.0	JR-4235-0	43	76	P4	2300	
46	2.5	JR-3240-0	30	73	P4	2000	
47	2.5	JR-3240-0	22	73	P4	2000	
49	2.0	JR-3240-0	49	55	P4	1125	
50	7.5	JR-3200-0	61	65	P4	1500	

NOTE; A star * after P1, P2, P3 and P5 indicates that reading is made on English Scale only.

Tube Type	Fil. Volts	Selectors	Bias	Eng.	Press	Mut. Cond.	Notations
53	2.5	JR-5604-2	12	65	P4	1500	Triode No. 1
53	2.5	JR-3204-6	12	65	P4	1500	Triode No. 2
55	2.5	JR-0205-0	39	49	P4	975	Triode Sect. Cap=G
55	2.5	JR-0405-0	39	0	P1*	---	Diode No. 1 -OK over 500 on 3000 scale.
55	2.5	JR-0305-0	39	0	P1*	---	Diode No. 2 - OK over 500 on 3000 scale.
56	2.5	JR-3204-0	29	65	P4	1450	
57	2.5	JR-0235-4	21	58	P4	1225	Cap = G
58	2.5	JR-0235-4	24	66	P4	1450	Cap = G
59	2.5	JR-4236-5	22	73	P4	2000	
75	6.3	JR-0205-0	11	34	P4	750	Triode Sect. Cap=G
75	6.3	JR-0405-2	11	0	P1*	---	Diode No. 1
75	6.3	JR-0305-2	11	0	P1*	---	Diode No. 2
76	6.3	JR-3204-0	29	65	P4	1450	
77	6.3	JR-0235-4	21	58	P4	1225	Cap = G
78	6.3	JR-0235-4	24	66	P4	1450	Cap = G
79	6.3	JR-0504-0	15	48	P4	1000	Triode No. 1-Cap=G
79	6.3	JR-3204-0	15	48	P4	1000	Triode No. 2
81	7.5	JR-0200-0	0	6	P1*	----	
85	6.3	JR-0205-0	39	49	P4	975	Triode Sect.-Cap=G
85	6.3	JR-0405-2	39	0	P1*	---	Diode No. 1
85	6.3	JR-0305-2	39	0	P1*	---	Diode No. 2
89/89Y	6.3	JR-0235-4	37	66	P4	1550	Cap = G

THE HICKOK ELECTRICAL INSTRUMENT COMPANY
10514 Dupont Avenue
Cleveland 8, Ohio



R1	1800 Ω
R2	1200 Ω
R3	15000 Ω
R4	150 Ω
R5	150 Ω DUAL POT.
R6	8500 Ω ADJUST
R7	3000 Ω POT.
R8	180,000 Ω
R9	20 Ω
R10	330,000 Ω
R12	50 Ω
R13	50 Ω

R14	150 Ω
R16	200 Ω
R20	47 Ω
R21	47 Ω
R22	47 Ω
R23	15000 Ω
R24	215,000 Ω
C1	1 MFD-400 V.
C2	0027-1000 V.

SCHEMATIC
MODEL 600 TUBE TESTER
MADE BY
THE HICKOK ELECTRICAL INSTRUMENT COMPANY
CLEVELAND, OHIO

DRAWING NUMBER 756W

SCHEMATIC WIRING DIAGRAM
USED ON MODEL 600 TUBE TESTER — DATE 8-24-50

DRAWN	CHECKED	APPROVED	DRAWING NUMBER
JR		JRB	756W

Fil 1-3
Fil 2-2
Grid 1-9
Plate 1-9
Screen 1-9
Cathode 1-9
Suppressor-9

A 9
B 8
C 7
D 6
E 5
F 4
H 3
I 2
J
K